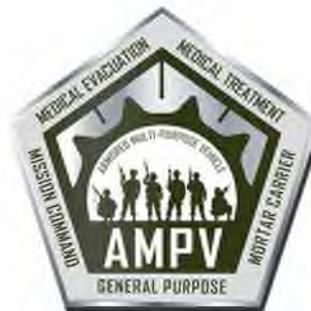


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## Selected Acquisition Report (SAR)

RCS: DD-A&T(Q&A)823-471



## Armored Multi-Purpose Vehicle (AMPV)

As of FY 2019 President's Budget

Defense Acquisition Management  
Information Retrieval  
(DAMIR)

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## Sensitivity Originator

No originator info Available at this time.

## Common Acronyms and Abbreviations for MDAP Programs

Acq O&M - Acquisition-Related Operations and Maintenance  
ACAT - Acquisition Category  
ADM - Acquisition Decision Memorandum  
APB - Acquisition Program Baseline  
APPN - Appropriation  
APUC - Average Procurement Unit Cost  
\$B - Billions of Dollars  
BA - Budget Authority/Budget Activity  
Blk - Block  
BY - Base Year  
CAPE - Cost Assessment and Program Evaluation  
CARD - Cost Analysis Requirements Description  
CDD - Capability Development Document  
CLIN - Contract Line Item Number  
CPD - Capability Production Document  
CY - Calendar Year  
DAB - Defense Acquisition Board  
DAE - Defense Acquisition Executive  
DAMIR - Defense Acquisition Management Information Retrieval  
DoD - Department of Defense  
DSN - Defense Switched Network  
EMD - Engineering and Manufacturing Development  
EVM - Earned Value Management  
FOC - Full Operational Capability  
FMS - Foreign Military Sales  
FRP - Full Rate Production  
FY - Fiscal Year  
FYDP - Future Years Defense Program  
ICE - Independent Cost Estimate  
IOC - Initial Operational Capability  
Inc - Increment  
JROC - Joint Requirements Oversight Council  
\$K - Thousands of Dollars  
KPP - Key Performance Parameter  
LRIP - Low Rate Initial Production  
\$M - Millions of Dollars  
MDA - Milestone Decision Authority  
MDAP - Major Defense Acquisition Program  
MILCON - Military Construction  
N/A - Not Applicable  
O&M - Operations and Maintenance  
ORD - Operational Requirements Document  
OSD - Office of the Secretary of Defense  
O&S - Operating and Support  
PAUC - Program Acquisition Unit Cost

PB - President's Budget  
PE - Program Element  
PEO - Program Executive Officer  
PM - Program Manager  
POE - Program Office Estimate  
RDT&E - Research, Development, Test, and Evaluation  
SAR - Selected Acquisition Report  
SCP - Service Cost Position  
TBD - To Be Determined  
TY - Then Year  
UCR - Unit Cost Reporting  
U.S. - United States  
USD(AT&L) - Under Secretary of Defense (Acquisition, Technology and Logistics)

## Program Information

**Program Name**

Armored Multi-Purpose Vehicle (AMPV)

**DoD Component**

Army

## Responsible Office

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**Date Assigned:** September 5, 2014

## References

### **SAR Baseline (Development Estimate)**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated May 12, 2015

### **Approved APB**

Defense Acquisition Executive (DAE) Approved Acquisition Program Baseline (APB) dated May 12, 2015

## Mission and Description

The Armored Multi-Purpose Vehicle (AMPV) is the materiel solution for replacement of the Army's M113 Armored Personnel Carrier Family of Vehicles (FoV) within the Armored Brigade Combat Team (ABCT). It will mitigate current and future capability gaps in force protection, mobility, reliability and interoperability across the spectrum of conflict. The AMPV will replace five mission roles currently performed by the M113 FoV by transferring the current M113 Mission Equipment Packages to a new Military Vehicle Derivative platform. In total, the AMPV FoV will account for approximately 30% of the ABCT's tracked fleet and consists of the following five variants:

**Mission Command Vehicle:** This platform enables effective mission command planning and execution for both the Command Post and Tactical Command Vehicle versions. It will host current Battle Command Systems, communications equipment future replacements and upgrades of hardware and software.

**Medical Treatment Vehicle:** This platform will provide a protected surgical environment with adequate lighting and accessible medical equipment. It will provide a capability for immediate medical care for one patient by a medical crew of four.

**Medical Evacuation Vehicle:** This platform will conduct combat medical evacuation activities and provide evacuation for up to four litter or six ambulatory patients with a crew of three medical attendants.

**General Purpose Vehicle:** This platform will operate throughout the battle space by conducting re-supply, maintenance, casualty evacuation and other tasks within the formation.

**Mortar Carrier Vehicle:** This platform will provide immediate responsive fire support to conduct fast-paced offensive operations.

## Executive Summary

### Program Highlights Since Last Report

The AMPV program requirements are stable and funding is adequate to meet cost, schedule and performance objectives. There is an increase in risk to the objective Limited User Test (LUT) Start date and increased cost and schedule risk due to a proposed FY 2018 Senate Appropriations Committee on Defense (SAC-D) \$56.28M mark on Wheeled & Tracked Combat Vehicle (WTCV) Procurement funding. Overall, current estimates against the APB metrics remain unchanged from the previous SAR.

The AMPV program completed its first four scheduled milestones within its APB schedule parameters, the most recent is Developmental Test Start in July 2017. Additionally, as of January 31, 2018, BAE delivered 28 of 29 prototypes. On average, vehicle deliveries were three months behind the contracted delivery schedule. The Project Management Office (PMO) minimized the total program delay by revising and compressing the test plan. This was done by merging previously planned "contractor miles" into the formal Government test program. This allowed the program to move directly into Government reliability testing. The realignment of the test schedule was successful for reliability testing but the program experienced an increase in schedule risk to the planned objective LUT Start date due to initial performance testing delays associated with unscheduled maintenance of the engine and fire suppression/extinguisher system.

The program is mitigating maintenance delays by placing engine and fire extinguishing/suppression field service representatives at both Aberdeen Test Center and Yuma Test Center to provide more timely response. The program identified root causes for the fire extinguishing/suppression system issues and developed corrective actions for incorporation into the design during the Corrective Action Period in March. The program is reviewing failure modes of the Cummins V903 engine, common with Bradley and Paladin, to determine if the unscheduled maintenance is due to integration issues, quality issues or engine design issues. The program is also evaluating if the issues are within the tolerances of engine performance and reliability. The Army intends to make a decision in June 2018 with regard to LUT Start.

As of January 31, 2018, PMO AMPV completed automotive testing on the General Purpose (GP), Mission Command, Medical Evacuation, and Medical Treatment variants and load plan demonstrations on all variants. Automotive testing will commence on the Mortar Carrier (MC) in February 2018. Mortar firing on MC, and Electromagnetic Interference / Electromagnetic Compatibility testing on GP, are ongoing and performance specification requirements continue to be reviewed and approved by the Verification Working Group. AMPV Ballistic Hull testing commenced at Aberdeen Proving Ground, Maryland on January 25, 2018 with Gun Shield Exploitation and will continue through April 2018. Reliability, Availability, Maintainability (RAM) testing commenced in October 2017 with approximately 7,000 total miles accumulated on five vehicles through January 31, 2018. The PMO held a successful RAM In-Process Review on January 25, 2018 and decided the AMPV would continue with Government testing.

Overall program system performance is tracking to the APB KPP characteristics. Verification is ongoing with initial testing and successful completion of the Interim Design Review which occurred January 24-25, 2018. This review demonstrated that the design changes since the Critical Design Review, to include results of manufacturing, software coding and testing, are baselined and under configuration management control. The PMO estimates that the program will achieve all Threshold KPP Performance characteristics. There was no change to the Army Acquisition Objective (AAO) or performance requirements since the last report, demonstrating that the AMPV Program requirements are stable.

The DAE amended the AMPV Milestone B ADM on September 26, 2017 and increased the LRIP quantity from 289 to 551 vehicles. The authorized AMPV LRIP quantity is now 19% of the total production quantity. This increase in the LRIP quantity is to support of European Deterrence Initiative (EDI) and a U.S. Army Europe Operational Needs Statement. The Army approved a Directed Requirement for AMPV to replace the M113 family of vehicles in the Armored Brigade Combat Teams (ABCT) equipment sets located in Europe. The Directed Requirement requires 262 AMPVs acquired and integrated into the European Activity Set and Army Prepositioned Stock-2. The AMPV program needs to begin ordering its Early Order Materials in the month of March 2018 to be ready to start production immediately after Milestone C to meet the First Unit Equipped (FUE) milestone for EDI vehicles. Since AMPV is a new start in FY 2018 for Procurement funding, the Continuing

Resolution Authority limitations will delay vehicle deliveries starting in March 2018.

The increase in quantity to support EDI also increased procurement funding across the FYDP. The Army added \$253.9M FY 2018 and \$230.4M FY 2019 Overseas Contingency Operations funding to procure 131 AMPVs, 65 vehicles in FY 2018 and 66 vehicles in FY 2019, respectively, with the associated training and support. These 131 vehicles are in addition to the 149 Procurement-funded AMPVs to be bought with FY 2018 and FY 2019 base program funding. There is no change to the ten vehicles for Live Fire Testing funded with FY 2018 RDT&E.

The Army requested funding to procure an additional 24 vehicles under the base acquisition program to procure one and one half ABCTs of AMPVs in FY 2019. To accomplish this, the Army added \$88M in FY 2019 Procurement funding. The acceleration of the procurement profile is offset by a reduction of procurement funding of the base funding line in FY 2021 through FY 2023. The approved AAO remains the same at 2,897 vehicles and total program funding is adequate to meet cost, schedule and performance established in the APB.

The SAC-D proposed FY 2018 Procurement Appropriation mark of \$56.28M for WTCV may prevent the program from ordering the number of vehicles in the first year of production necessary to support Initial Operational Test & Evaluation in 2nd Quarter FY 2021. This delay may increase the total cost of the program, delay the FUE date and increase the cost of the 65 EDI vehicles planned for FY 2018 production. The FY 2018 PB requested production funding for AMPV in accordance with the DoD Financial Management Regulation's Full Funding Policy that requires "the total estimated cost of a military useable end item, be funded in the fiscal year in which the item is procured." The Army provided a Tier 1 reclama to Congress requesting removal of this mark.

The current EMD contract experienced cost growth. Contributing to the overrun are additional efforts necessary to meet performance requirements, under resourcing of logistics product development, under estimation of the number and complexity of engineering drawings, inadequate engineering support to manufacturing and test and unplanned efforts related to the replacement of prohibited materials on legacy parts. As a result of the projected overrun, BAE implemented an Over Target Baseline in order to budget for and manage the remainder of the EMD contract. The PMO verified the new Performance Measurement Baseline is affordable and executable from a schedule and resource standpoint. BAE resumed EVM reporting with delivery of an Integrated Program Management Report on December 19, 2017. The contract cost growth to date remains less than the program estimate at Milestone B and the Army funded the program to the OSD CAPE ICE at Milestone B. The program remains within cost and funding parameters.

As explained above, AMPV requirements are stable and adequately address performance objectives as approved in the current APB. Due to prototype-vehicle delivery delays, there is increased schedule risk to meet the LUT Start event. Additionally, there is an increased cost and schedule risk due to the potential Congressional mark on production funding.

There are no significant software-related issues with this program at this time.

History of Significant Developments Since Program Initiation	
History of Significant Developments Since Program Initiation	
Date	Significant Development Description
June 2013	AMPV CDD approved.
December 2014	AMPV Milestone B DAB.
December 2014	The DAE ADM authorizes AMPV to enter the acquisition lifecycle at Milestone B. The ADM directs the Army to fund the AMPV program to the OSD CAPE ICE.
December 2014	BAE Systems Land & Armaments is awarded a Cost Plus Incentive Fee EMD contract.
March 2015	The System Requirements Review (SRR) was completed. The SRR deemed the program ready to proceed into preliminary design.
May 2015	Development APB approved.
June 2015	Completed the Preliminary Design Review ensuring the allocated baseline was properly documented, assessed to be consistent with CDD requirements and under configuration control.
June 2016	Completed Critical Design review demonstrating that the program was ready to proceed to prototype production. Performance risks were understood and will be characterized with prototype testing.
October 2016	CDD revised to incorporate changes to KPP 2 – Survivability.
December 2016	Roll-out ceremony for first AMPV prototype.
January 2017	First AMPV Prototype Delivered.
July 2017	Developmental Test started.
September 2017	AMPV Milestone B ADM was amended to increase LRIP quantities from 289 to 551 vehicles.

### Threshold Breaches

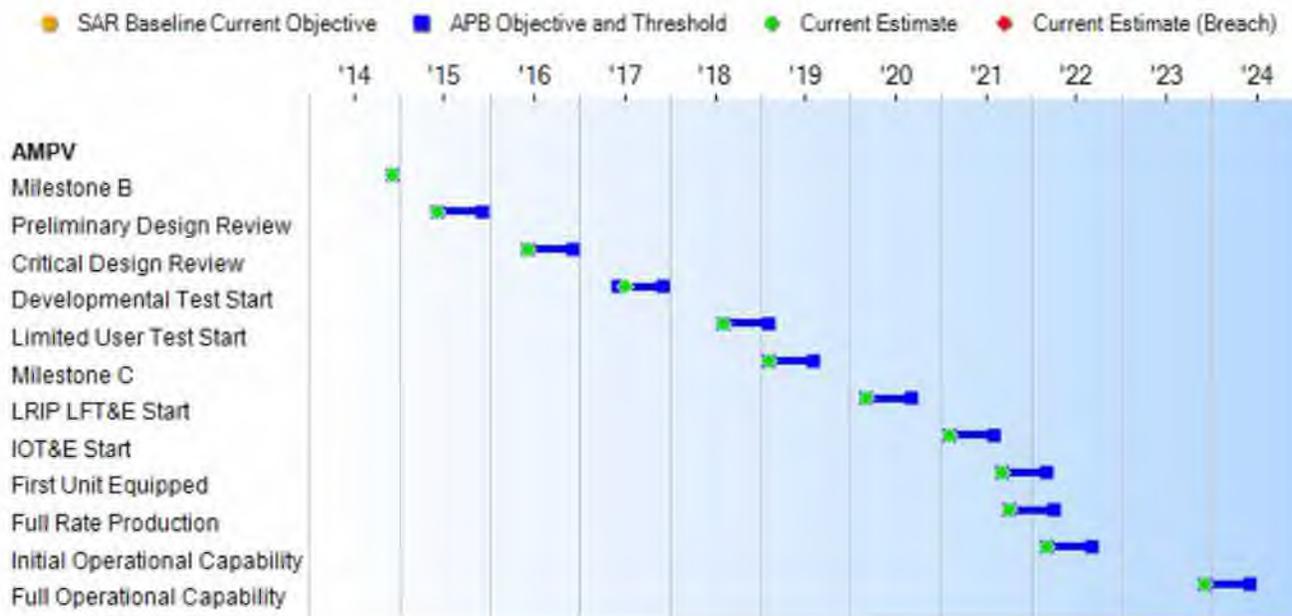
#### APB Breaches

- Schedule
- Performance
- Cost 
  - RDT&E
  - Procurement
  - MILCON
  - Acq O&M
- O&S Cost
- Unit Cost 
  - PAUC
  - APUC

#### Nunn-McCurdy Breaches

- Current UCR Baseline
  - PAUC None
  - APUC None
- Original UCR Baseline
  - PAUC None
  - APUC None

### Schedule



Schedule Events				
Events	SAR Baseline Development Estimate	Current APB Development Objective/Threshold	Current Estimate	
Milestone B	Dec 2014	Dec 2014	Dec 2014	Dec 2014
Preliminary Design Review	Jun 2015	Jun 2015	Dec 2015	Jun 2015
Critical Design Review	Jun 2016	Jun 2016	Dec 2016	Jun 2016
Developmental Test Start	Jun 2017	Jun 2017	Dec 2017	Jul 2017 (Ch-1)
Limited User Test Start	Aug 2018	Aug 2018	Feb 2019	Aug 2018
Milestone C	Feb 2019	Feb 2019	Aug 2019	Feb 2019
LRIP LFT&E Start	Mar 2020	Mar 2020	Sep 2020	Mar 2020
IOT&E Start	Feb 2021	Feb 2021	Aug 2021	Feb 2021
First Unit Equipped	Sep 2021	Sep 2021	Mar 2022	Sep 2021
Full Rate Production	Oct 2021	Oct 2021	Apr 2022	Oct 2021
Initial Operational Capability	Mar 2022	Mar 2022	Sep 2022	Mar 2022
Full Operational Capability	Dec 2023	Dec 2023	Jun 2024	Dec 2023

#### Change Explanations

(Ch-1) Developmental Test Start Current Estimate changed from June 2017 to July 2017 due to the actual start of Developmental Test occurring in July 2017 within two weeks of the APB objective.

**Acronyms and Abbreviations**

IOT&E - Initial Operational Test & Evaluation  
LFT&E - Live Fire Test & Evaluation

## Performance

Performance Characteristics				
SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Demonstrated Performance	Current Estimate
<b>KPP 1 Net Ready</b>				
The capability, system, and/or service must fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-	The capability, system, and/or service must fully support execution of all operational activities and information exchanges identified in DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP communications 3) Compliant with GIG Technical Guidance to include IT standards identified in the TV-1 and implementation guidance of GESPs, necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, and non-	The capability, system, and/or service must fully support execution of Joint critical operational activities and information exchanges identified in the DoD Enterprise Architecture and solution architectures based on integrated DoDAF content, and must satisfy the technical requirements for transition to Net-Centric military operations to include: 1) Solution architecture products compliant with DoD Enterprise Architecture based on integrated DoDAF content, including specified operationally effective information exchanges 2) Compliant with Net-Centric Data Strategy and Net-Centric Services Strategy, and the principles and rules identified in the DoD IEA, excepting tactical and non-IP Communications 3) Compliant with GIG Technical Guidance to include IT standards identified in the TV-1 and implementation guidance of GESPs necessary to meet all operational requirements specified in the DoD Enterprise Architecture and solution architecture views 4) IA requirements including availability, integrity, authentication, confidentiality, non-	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, spectrum, and JTRS requirements.	repudiation, and issuance of an ATO by the DAA, and 5) Supportability requirements to include SAASM, spectrum, and JTRS requirements.	repudiation, and issuance of an IATO or ATO by the DAA, and 5) supportability requirements to include SAASM, spectrum, and JTRS requirements.		
<b>KPP 3 Force Protection</b>				
Objective values listed in Table 6.1 and shall provide for spall reducing floor material or spall blanket.	Objective values listed in Table 6.1 and shall provide for spall reducing floor material or spall blanket.	The AMPV will provide protection for crew and occupant compartments to meet mission requirements. A kitting strategy can be used for selected threats as detailed in Table 6.1. The protection level from ballistic engagements shall be based on the most recent injury criteria thresholds provided by the ARL SLAD. At a minimum, the AMPV will provide integral protection for the crew and occupants from serious or greater injuries due to on-board fires, various blast, shock, overpressure, fragments and accelerative effects of attack by the threshold threats listed in the Table 6.1 for threat weapons systems. The AMPV shall prevent a sustained fuel fire when fuel container(s) are exposed to the RPG, IED, and EFP threats and conditions specified in Table 6.1. The AMPV shall minimize spall from overmatching threats.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.
<b>KPP 4 Sustainment</b>				
The AMPV, at full combat configuration (excluding failures and maintenance of the Government directed GFE/GFM MEP), shall achieve an Ao of at least 93.3% when measured continuously over a three-day mission (consistent with the General Purpose	The AMPV, at full combat configuration (excluding failures and maintenance of the Government directed GFE/GFM MEP), shall achieve an Ao of at least 93.3% when measured continuously over a three-day mission (consistent with the General Purpose	The AMPV, at full combat configuration (excluding failures and maintenance of the Government directed GFE/GFM MEP), shall achieve an Ao of at least 91.8% when measured continuously over a three-day mission (consistent with the General Purpose	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

<p>M113A3 Mission Profile defined in the HBCT OMS/MP) with only SA failures factored into the Ao assessment. The AMPV FDSC shall include all provisions necessary to fully address each vehicle variant with GFE/GFM MEP integrated therein, to support the supplementary assessment/evaluation of total vehicle system availability and hold accountable vehicle development for proper functional integration of the MEP (MEP failures caused by integration issues are chargeable to the host vehicle). Accordingly, availability of the MEP is not reduced (degraded or lessened) beyond that of its current performance as a result of integration into the host AMPV chassis. The AMPV at full combat configuration (excluding Department of the Army directed GFE/GFM MEP) will achieve an Am of not less than 86.5% when assessed at the Army fleet level.</p>	<p>M113A3 Mission Profile defined in the HBCT OMS/MP) with only SA failures factored into the Ao assessment. The AMPV FDSC shall include all provisions necessary to fully address each vehicle variant with GFE/GFM MEP integrated therein, to support the supplementary assessment/evaluation of total vehicle system availability and hold accountable vehicle development for proper functional integration of the MEP (MEP failures caused by integration issues are chargeable to the host vehicle). Accordingly, availability of the MEP is not reduced (degraded or lessened) beyond that of its current performance as a result of integration into the host AMPV chassis. The AMPV at full combat configuration (excluding Department of the Army directed GFE/GFM MEP) will achieve an Am of not less than 86.5% when assessed at the Army fleet level.</p>	<p>M113A3 Mission Profile defined in the HBCT OMS/MP) with only SA failures factored into the Ao assessment. The AMPV FDSC shall include all provisions necessary to fully address each vehicle variant with GFE/GFM MEP integrated therein, to support the supplementary assessment/evaluation of total vehicle system availability and hold accountable vehicle development for proper functional integration of the MEP (MEP failures caused by integration issues are chargeable to the host vehicle). Accordingly, availability of the MEP is not reduced (degraded or lessened) beyond that of its current performance as a result of integration into the host AMPV chassis. The AMPV at full combat configuration (excluding Department of the Army directed GFE/GFM MEP) will achieve an Am of not less than 81.5% when assessed at the Army fleet level.</p>		
<b>KPP 5 Energy</b>				
<p>Energy objective values are developed at a vehicle weight meeting the Survivability KPP and Force Protection KPP objectives and other performance KPP objectives while ensuring the vehicle can operate within fuel apportioned for the AMPV during the 72-hour mission cycle of HBCT OMS/MP (for each individual mission role). The AMPV, using standard (JP8) fuel, will consume fuel at, or better than, the</p>	<p>Energy objective values are developed at a vehicle weight meeting the Survivability KPP and Force Protection KPP objectives and other performance KPP objectives while ensuring the vehicle can operate within fuel apportioned for the AMPV during the 72-hour mission cycle of HBCT OMS/MP (for each individual mission role). The AMPV, using standard (JP8) fuel, will consume fuel at, or better than, the</p>	<p>Energy threshold values are developed at a vehicle weight meeting the Survivability KPP and Force Protection KPP thresholds and other performance KPP thresholds while ensuring the vehicle can operate within fuel apportioned for the AMPV during the 72-hour mission cycle of HBCT OMS/MP (for each individual mission role). The AMPV, using standard (JP8) fuel, will consume fuel at, or better than, the</p>	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

level identified in Table 6.2 (O) at full combat configuration, when evaluated at sustained speeds of 30-MPH on primary roads, maneuvering the distance outlined in the HBCT OMS/MP for the 72-hour mission cycle without refueling, and while providing power sustained loads to support all electronic equipment with a 50% spare electrical capacity for all variants. The AMPV will consume fuel at, or better than, the level identified in Table 6.2 for stationary operations (Idle/GPH) when evaluated at providing power at sustained loads to support all electronic equipment with a 50% spare electrical capacity for all variants.	level identified in Table 6.2 (O) at full combat configuration, when evaluated at sustained speeds of 30-MPH on primary roads, maneuvering the distance outlined in the HBCT OMS/MP for the 72-hour mission cycle without refueling, and while providing power sustained loads to support all electronic equipment with a 50% spare electrical capacity for all variants. The AMPV will consume fuel at, or better than, the level identified in Table 6.2 for stationary operations (Idle/GPH) when evaluated at providing power at sustained loads to support all electronic equipment with a 50% spare electrical capacity for all variants.	level identified in Table 6.2 (T) at full combat configuration, when evaluated at sustained speeds of 30-MPH on primary roads, maneuvering the distance outlined in the HBCT OMS/MP for the 72-hour mission cycle without refueling, and while providing power at sustained loads to support all electronic equipment with a 20% spare electrical capacity for all variants. The AMPV will consume fuel at, or better than, the level identified in Table 6.2 for stationary operations (Idle/GPH) when evaluated at providing power at sustained loads to support all electronic equipment with a 20% spare electrical capacity for all variants.		
<b>KPP 6 Mobility</b>				
The AMPV mobility is aligned with Survivability and Force Protection KPP requirements. The vehicle must be capable of traversing steep hills, valleys, and man-made objects typical in cross-country and urban terrain. The AMPV must be able to maintain mobility threshold as outlined in the HBCT OMS/MP. The platform must have the speed and mobility to successfully fulfill its role in the BCT and maintain its doctrinal positioning within the ABCT formation.	The AMPV mobility is aligned with Survivability and Force Protection KPP requirements. The vehicle must be capable of traversing steep hills, valleys, and man-made objects typical in cross-country and urban terrain. The AMPV must be able to maintain mobility threshold as outlined in the HBCT OMS/MP. The platform must have the speed and mobility to successfully fulfill its role in the BCT and maintain its doctrinal positioning within the ABCT formation.	(T=O) The AMPV mobility is aligned with Survivability and Force Protection KPP requirements. The vehicle must be capable of traversing steep hills, valleys, and man-made objects typical in cross-country and urban terrain. The AMPV must be able to maintain mobility threshold as outlined in the HBCT OMS/MP. The platform must have the speed and mobility to successfully fulfill its role in the BCT and maintain its doctrinal positioning within the ABCT formation.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.
<b>KPP 7 Training</b>				
Upon completion of FUE NET the soldier, both operator and maintainer, will successfully accomplish >99% (O) of	Upon completion of FUE NET the soldier, both operator and maintainer, will successfully accomplish >99% (O) of	Upon completion of FUE NET the soldier, both operator and maintainer, will successfully accomplish >80% (T) of	TBD	AMPV Management estimates that the program will

the critical tasks and >80% (O) of the non-critical tasks required to operate and maintain the AMPV. Further, institutional and sustainment training will be IAW AR 71-70 and AR 350-1.	the critical tasks and >80% (O) of the non-critical tasks required to operate and maintain the AMPV. Further, institutional and sustainment training will be IAW AR 71-70 and AR 350-1.	the critical tasks and >70% (T) of the non-critical tasks required to operate and maintain the AMPV. Further, institutional and sustainment training will be IAW AR 71-70 and AR 350-1.		achieve the Threshold requirement.
<b>KPP 8 Lethality</b>				
The Lethality KPP addresses the GCV ICD Capability 3, Lethality. The AMPV MC will host and integrate the current M121 120-mm mortar system to provide indirect fires in support of maneuver units. The mortar system must accommodate a smoothbore 120-mm mortar system, which must be capable of firing the full family of mortar ammunition: HE, illumination, IR illumination, smoke, precision munitions, and future extended range munitions. The system will integrate the current M95 Mortar Fire Control System-Mounted and carry current ground mounting and firing equipment as utilized on the M1064 MC. The AMPV MC's lethality, responsiveness and accuracy will be equal to or greater than the M1064 MC.	The Lethality KPP addresses the GCV ICD Capability 3, Lethality. The AMPV MC will host and integrate the current M121 120-mm mortar system to provide indirect fires in support of maneuver units. The mortar system must accommodate a smoothbore 120-mm mortar system, which must be capable of firing the full family of mortar ammunition: HE, illumination, IR illumination, smoke, precision munitions, and future extended range munitions. The system will integrate the current M95 Mortar Fire Control System-Mounted and carry current ground mounting and firing equipment as utilized on the M1064 MC. The AMPV MC's lethality, responsiveness and accuracy will be equal to or greater than the M1064 MC.	(T=O) The Lethality KPP addresses the GCV ICD Capability 3, Lethality. The AMPV MC will host and integrate the current M121 120-mm mortar system to provide indirect fires in support of maneuver units. The mortar system must accommodate a smoothbore 120-mm mortar system, which must be capable of firing the full family of mortar ammunition: HE, illumination, IR illumination, smoke, precision munitions, and future extended range munitions. The system will integrate the current M95 Mortar Fire Control System-Mounted and carry current ground mounting and firing equipment as utilized on the M1064 MC. The AMPV MC's lethality, responsiveness and accuracy will be equal to or greater than the M1064 MC.	TBD	AMPV Management estimates that the program will achieve the Threshold requirement.

Classified Performance information is provided in the classified annex to this submission.

#### Requirements Reference

Capability Development Document (CDD) dated June 21, 2013

#### Change Explanations

None

**Notes**

Detailed KPP information is available in the approved Armored Multi-Purpose Vehicle CDD, dated September 29, 2016, including Table 6.1 and Table 6.2 referenced in the Performance Characteristics above.

**Acronyms and Abbreviations**

% - percent  
 ABCT - Armor Brigade Combat Team  
 Am - Materiel Availability  
 Ao - Operational Availability  
 AR - Army Regulation  
 ARL - Army Research Laboratory  
 ATO - Authorization To Operate  
 BCT - Brigade Combat Team  
 DAA - Designated Accrediting Authority  
 DoDAF - Department of Defense Architecture Framework  
 EFP - Explosively Formed Penetrator  
 FDSC - Failure Definition and Scoring Criteria  
 FUE - First Unit Equipped  
 GCV - Ground Combat Vehicle  
 GESP - GIG Enterprise Service Profile  
 GFE - Government Furnished Equipment  
 GFM - Government Furnished Material  
 GIG - Global Information Grid  
 GPH - Gallons Per Hour  
 HBCT - Heavy Brigade Combat Team  
 HE - High Explosive  
 IA - Information Assurance  
 IATO - Interim Authority To Operate  
 IAW - In Accordance With  
 ICD - Initial Capability Document  
 IEA - Information Enterprise Architecture  
 IED - Improvised Explosive Device  
 IP - Internet Protocol  
 IR - InfraRed  
 IT - Information Technology  
 JTRS - Joint Tactical Radio System  
 MC - Mortar Carrier  
 MEP - Mission Equipment Package  
 mm - millimeter  
 MPH - Miles Per Hour  
 NET - New Equipment Training  
 O - Objective  
 OMS/MP - Operational Mode Summary/Mission Profile  
 RPG - Rocket Propelled Grenade  
 SA - System Abort  
 SAASM - Selective Availability Anti-Spoofing Module  
 SLAD - Survivability/Lethality Analysis Directorate  
 T - Threshold  
 TV - Technical View

### Track to Budget

**RDT&E**

Appn	BA	PE
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Army 2040 05 0605028A

Project	Name
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EB5 Armored Multi-Purpose Vehicle (AMPV)

**Procurement**

Appn	BA	PE
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Army 2033 01 0211708A

Line Item	Name
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2944G80819 Armored Multi Purpose Vehicle (AMPV)

**Acq O&M**

Appn	BA	PE
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Army 2020 04 0702806A

Subactivity Group	Name
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435 Acquisition & Management Support: Armored Multi-Purpose Vehicle (AMPV) (Shared)

## Cost and Funding

### Cost Summary

Total Acquisition Cost							
Appropriation	BY 2015 \$M			BY 2015 \$M	TY \$M		
	SAR Baseline Development Estimate	Current APB Development Objective/Threshold		Current Estimate	SAR Baseline Development Estimate	Current APB Development Objective	Current Estimate
RDT&E	988.2	988.2	1087.0	988.5	1073.8	1073.8	1048.7
Procurement	9736.6	9736.6	10710.3	9841.4	12871.0	12871.0	12618.5
Flyaway	--	--	--	9275.2	--	--	11901.0
Recurring	--	--	--	9236.2	--	--	11858.1
Non Recurring	--	--	--	39.0	--	--	42.9
Support	--	--	--	566.2	--	--	717.5
Other Support	--	--	--	391.6	--	--	491.7
Initial Spares	--	--	--	174.6	--	--	225.8
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	--	84.3	0.0	0.0	107.4
Total	10724.8	10724.8	N/A	10914.2	13944.8	13944.8	13774.6

#### Current APB Cost Estimate Reference

CAPE ICE dated December 08, 2014

#### Cost Notes

In accordance with section 842 of the National Defense Authorization Act for FY 2017, which amended title 10 U.S.C. § 2334, the Director of Cost Assessment and Program Evaluation, and the Secretary of the military department concerned or the head of the Defense Agency concerned, must issue guidance requiring a discussion of risk, the potential impacts of risk on program costs, and approaches to mitigate risk in cost estimates for MDAPs and major subprograms. The information required by the guidance is to be reported in each SAR. This guidance is not yet available; therefore, the information on cost risk is not contained in this SAR.

Beginning in FY 2019, the Army realigned direct civilian personnel pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability.

Total Quantity			
Quantity	SAR Baseline Development Estimate	Current APB Development	Current Estimate
RDT&E	39	39	39
Procurement	2897	2897	2897
Total	2936	2936	2936

#### Quantity Notes

To support the development phase 39 AMPVs are required: 29 AMPV prototype vehicles for EMD and ten production representative AMPVs for Full-Up System Level live fire tests; the live fire test assets are RDT&E-funded in LRIP.

## Cost and Funding

### Funding Summary

Appropriation Summary									
FY 2019 President's Budget / December 2017 SAR (TY\$ M)									
Appropriation	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
RDT&E	545.3	199.8	118.2	92.7	92.7	0.0	0.0	0.0	1048.7
Procurement	0.0	447.6	710.2	486.6	826.3	599.5	621.1	8927.2	12618.5
MILCON	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Acq O&M	0.0	0.0	5.5	5.6	5.7	5.7	5.8	79.1	107.4
PB 2019 Total	545.3	647.4	833.9	584.9	924.7	605.2	626.9	9006.3	13774.6
PB 2018 Total	552.4	647.3	520.6	590.6	663.3	572.4	695.0	9686.0	13927.6
Delta	-7.1	0.1	313.3	-5.7	261.4	32.8	-68.1	-679.7	-153.0

#### Funding Notes

The AMPV Milestone B ADM was amended on September 26, 2017. This amendment increased the LRIP quantity from 289 to 551 vehicles. The increased AMPV LRIP quantity is in support of the European Deterrence Initiative (EDI) and in response to an U.S. Army Europe (USAREUR) Operational Needs Statement (ONS). In response to the ONS, the Army issued a Directed Requirement for AMPV to replace the M113 family of vehicles in the Armored Brigade Combat Teams (ABCT) aligned with USAREUR. The Directed Requirement requires initial fielding of AMPV by the end of CY 2019, with a maximum of 262 combat platforms acquired and integrated into the European Activity Set and Army Prepositioned Stock-2.

The increase in quantity to support EDI increased Procurement funding across the FYDP. The Army added \$253.9M FY 2018 and \$230.4M FY 2019 Overseas Contingency Operations funding to procure 131 AMPVs, 65 vehicles in FY 2018 and 66 vehicles in FY 2019, with the associated training and support. These 131 vehicles are in addition to the 149 Procurement -funded AMPVs to be procured with the FY 2018 and FY 2019 base program funding. There was no change to the ten vehicles for Live Fire Testing funded with the FY 2018 RDT&E.

Additionally, the Army requested funding to procure an addition 24 vehicles under the acquisition program to procure one and one half ABCTs of AMPVs in FY 2019. To accomplish this, the Army added \$88M in FY 2019 Procurement. The acceleration of the procurement profile is offset by a reduction of Procurement funding FY 2021 through FY 2023. The approved Army Acquisition Objective remains the same at 2,897 vehicles and total program funding is adequate to meet cost, schedule and performance in the approved baseline.

Quantity Summary										
FY 2019 President's Budget / December 2017 SAR (TY\$ M)										
Quantity	Undistributed	Prior	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	To Complete	Total
Development	39	0	0	0	0	0	0	0	0	39
Production	0	0	107	197	130	204	139	139	1981	2897
PB 2019 Total	39	0	107	197	130	204	139	139	1981	2936
PB 2018 Total	39	0	107	107	130	139	139	180	2095	2936
Delta	0	0	0	90	0	65	0	-41	-114	0

**Cost and Funding**

**Annual Funding By Appropriation**

Annual Funding							
2040   RDT&E   Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	12.3
2013	--	--	--	--	--	--	26.8
2014	--	--	--	--	--	--	27.3
2015	--	--	--	--	--	--	88.8
2016	--	--	--	--	--	--	213.0
2017	--	--	--	--	--	--	177.1
2018	--	--	--	--	--	--	199.8
2019	--	--	--	--	--	--	118.2
2020	--	--	--	--	--	--	92.7
2021	--	--	--	--	--	--	92.7
Subtotal	39	--	--	--	--	--	1048.7

Annual Funding 2040   RDT&E   Research, Development, Test, and Evaluation, Army							
Fiscal Year	Quantity	BY 2015 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2012	--	--	--	--	--	--	12.6
2013	--	--	--	--	--	--	27.0
2014	--	--	--	--	--	--	27.0
2015	--	--	--	--	--	--	86.5
2016	--	--	--	--	--	--	205.5
2017	--	--	--	--	--	--	168.1
2018	--	--	--	--	--	--	186.8
2019	--	--	--	--	--	--	109.0
2020	--	--	--	--	--	--	83.8
2021	--	--	--	--	--	--	82.2
Subtotal	39	--	--	--	--	--	988.5

Annual Funding							
2033   Procurement   Procurement of Weapons and Tracked Combat Vehicles, Army							
Fiscal Year	Quantity	TY \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2018	107	405.5	5.9	18.1	429.5	18.1	447.6
2019	197	646.1	9.9	14.8	670.8	39.4	710.2
2020	130	403.9	37.5	6.4	447.8	38.8	486.6
2021	204	711.4	48.7	3.6	763.7	62.6	826.3
2022	139	474.1	66.6	--	540.7	58.8	599.5
2023	139	502.5	68.7	--	571.2	49.9	621.1
2024	180	576.1	65.3	--	641.4	35.6	677.0
2025	180	646.0	67.2	--	713.2	37.9	751.1
2026	180	658.1	69.3	--	727.4	39.1	766.5
2027	180	671.0	71.4	--	742.4	39.1	781.5
2028	180	684.7	73.6	--	758.3	39.9	798.2
2029	180	699.2	75.8	--	775.0	40.7	815.7
2030	180	714.3	78.1	--	792.4	41.7	834.1
2031	180	730.0	80.5	--	810.5	42.5	853.0
2032	180	746.3	83.0	--	829.3	43.5	872.8
2033	180	763.3	71.6	--	834.9	44.4	879.3
2034	181	784.8	53.5	--	838.3	45.5	883.8
2035	--	--	14.2	--	14.2	--	14.2
Subtotal	2897	10817.3	1040.8	42.9	11901.0	717.5	12618.5

Annual Funding							
2033   Procurement   Procurement of Weapons and Tracked Combat Vehicles, Army							
Fiscal Year	Quantity	BY 2015 \$M					
		End Item Recurring Flyaway	Non End Item Recurring Flyaway	Non Recurring Flyaway	Total Flyaway	Total Support	Total Program
2018	107	373.9	5.4	16.8	396.1	16.7	412.8
2019	197	584.4	9.0	13.4	606.8	35.6	642.4
2020	130	358.2	33.2	5.7	397.1	34.4	431.5
2021	204	618.5	42.3	3.1	663.9	54.5	718.4
2022	139	404.1	56.7	--	460.8	50.2	511.0
2023	139	419.9	57.5	--	477.4	41.7	519.1
2024	180	472.0	53.5	--	525.5	29.2	554.7
2025	180	518.9	54.0	--	572.9	30.4	603.3
2026	180	518.3	54.5	--	572.8	30.8	603.6
2027	180	518.0	55.2	--	573.2	30.2	603.4
2028	180	518.3	55.7	--	574.0	30.2	604.2
2029	180	518.9	56.2	--	575.1	30.2	605.3
2030	180	519.7	56.8	--	576.5	30.3	606.8
2031	180	520.7	57.4	--	578.1	30.3	608.4
2032	180	521.9	58.0	--	579.9	30.4	610.3
2033	180	523.3	49.0	--	572.3	30.5	602.8
2034	181	527.5	35.9	--	563.4	30.6	594.0
2035	--	--	9.4	--	9.4	--	9.4
Subtotal	2897	8436.5	799.7	39.0	9275.2	566.2	9841.4

Annual Funding 2020   Acq O&M   Operation and Maintenance, Army		
Fiscal Year	TY \$M	
	Total Program	
2019	5.5	
2020	5.6	
2021	5.7	
2022	5.7	
2023	5.8	
2024	5.9	
2025	6.0	
2026	6.1	
2027	6.3	
2028	6.4	
2029	6.5	
2030	6.6	
2031	6.8	
2032	6.9	
2033	7.1	
2034	7.2	
2035	7.3	
Subtotal	107.4	

Annual Funding 2020   Acq O&M   Operation and Maintenance, Army	
Fiscal Year	BY 2015 \$M
	Total Program
2019	5.1
2020	5.1
2021	5.1
2022	5.0
2023	4.9
2024	4.9
2025	4.9
2026	4.9
2027	5.0
2028	4.9
2029	4.9
2030	4.9
2031	5.0
2032	4.9
2033	5.0
2034	4.9
2035	4.9
Subtotal	84.3

## Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
<b>Approval Date</b>	12/23/2014	9/26/2017
<b>Approved Quantity</b>	289	551
<b>Reference</b>	Milestone B ADM	Milestone B ADM Amendment
<b>Start Year</b>	2018	2018
<b>End Year</b>	2022	2022

The Current Total LRIP Quantity is more than 10% of the total production quantity due to an amendment to the AMPV Milestone B ADM on September 26, 2017. This amendment increased the LRIP quantity from 289 to 551 vehicles. The increased AMPV LRIP quantity is in support of the European Deterrence Initiative and in response to an U.S. Army Europe (USAREUR) Operational Needs Statement (ONS). In response to the ONS, the Army approved a Directed Requirement for AMPV to replace the M113 family of vehicles in the Armored Brigade Combat Teams aligned with USAREUR. The Directed Requirement requires initial fielding of AMPV by the end of CY 2019, with a maximum of 262 combat platforms acquired and integrated into the European Activity Set and Army Prepositioned Stock-2.

## **Foreign Military Sales**

None

## **Nuclear Costs**

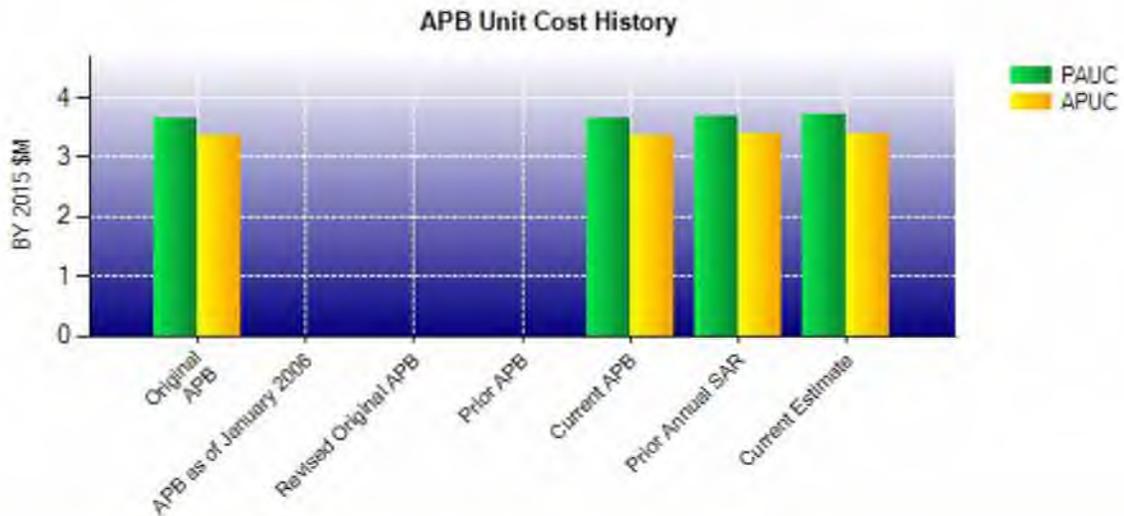
None

**Unit Cost**

Current UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2015 \$M	BY 2015 \$M	% Change
	Current UCR Baseline (May 2015 APB)	Current Estimate (Dec 2017 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	10724.8	10914.2	
Quantity	2936	2936	
Unit Cost	3.653	3.717	+1.75
<b>Average Procurement Unit Cost</b>			
Cost	9736.6	9841.4	
Quantity	2897	2897	
Unit Cost	3.361	3.397	+1.07

Original UCR Baseline and Current Estimate (Base-Year Dollars)			
Item	BY 2015 \$M	BY 2015 \$M	% Change
	Original UCR Baseline (May 2015 APB)	Current Estimate (Dec 2017 SAR)	
<b>Program Acquisition Unit Cost</b>			
Cost	10724.8	10914.2	
Quantity	2936	2936	
Unit Cost	3.653	3.717	+1.75
<b>Average Procurement Unit Cost</b>			
Cost	9736.6	9841.4	
Quantity	2897	2897	
Unit Cost	3.361	3.397	+1.07



APB Unit Cost History					
Item	Date	BY 2015 \$M		TY \$M	
		PAUC	APUC	PAUC	APUC
Original APB	May 2015	3.653	3.361	4.750	4.443
APB as of January 2006	N/A	N/A	N/A	N/A	N/A
Revised Original APB	N/A	N/A	N/A	N/A	N/A
Prior APB	N/A	N/A	N/A	N/A	N/A
Current APB	May 2015	3.653	3.361	4.750	4.443
Prior Annual SAR	Dec 2016	3.680	3.385	4.744	4.440
Current Estimate	Dec 2017	3.717	3.397	4.692	4.356

### SAR Unit Cost History

Current SAR Baseline to Current Estimate (TY \$M)									
PAUC Development Estimate	Changes								PAUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.750	-0.078	0.000	-0.046	0.000	0.064	0.000	0.002	-0.058	4.692

Current SAR Baseline to Current Estimate (TY \$M)									
Initial APUC Development Estimate	Changes								APUC Current Estimate
	Econ	Qty	Sch	Eng	Est	Oth	Spt	Total	
4.443	-0.070	0.000	-0.047	0.000	0.027	0.000	0.002	-0.088	4.356

SAR Baseline History				
Item	SAR Planning Estimate	SAR Development Estimate	SAR Production Estimate	Current Estimate
Milestone A	N/A	N/A	N/A	N/A
Milestone B	N/A	Dec 2014	N/A	Dec 2014
Milestone C	N/A	Feb 2019	N/A	Feb 2019
IOC	N/A	Mar 2022	N/A	Mar 2022
Total Cost (TY \$M)	N/A	13944.8	N/A	13774.6
Total Quantity	N/A	2936	N/A	2936
PAUC	N/A	4.750	N/A	4.692

**Cost Variance**

Summary TY \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	1073.8	12871.0	--	--	13944.8
Previous Changes					
Economic	-18.3	-88.7	--	--	-107.0
Quantity	--	--	--	--	--
Schedule	--	+2.1	--	--	+2.1
Engineering	--	--	--	--	--
Estimating	+8.9	+66.7	--	--	+75.6
Other	--	--	--	--	--
Support	--	+12.1	--	--	+12.1
Subtotal	-9.4	-7.8	--	--	-17.2
Current Changes					
Economic	-7.1	-113.1	--	--	-120.2
Quantity	--	--	--	--	--
Schedule	--	-137.1	--	--	-137.1
Engineering	--	--	--	--	--
Estimating	-8.6	+12.7	--	+107.4	+111.5
Other	--	--	--	--	--
Support	--	-7.2	--	--	-7.2
Subtotal	-15.7	-244.7	--	+107.4	-153.0
Total Changes	-25.1	-252.5	--	+107.4	-170.2
CE - Cost Variance	1048.7	12618.5	--	107.4	13774.6
CE - Cost & Funding	1048.7	12618.5	--	107.4	13774.6

Summary BY 2015 \$M					
Item	RDT&E	Procurement	MILCON	Acq O&M	Total
SAR Baseline (Development Estimate)	988.2	9736.6	--	--	10724.8
Previous Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	+8.3	+58.4	--	--	+66.7
Other	--	--	--	--	--
Support	--	+11.9	--	--	+11.9
Subtotal	+8.3	+70.3	--	--	+78.6
Current Changes					
Economic	--	--	--	--	--
Quantity	--	--	--	--	--
Schedule	--	--	--	--	--
Engineering	--	--	--	--	--
Estimating	-8.0	+31.8	--	+84.3	+108.1
Other	--	--	--	--	--
Support	--	+2.7	--	--	+2.7
Subtotal	-8.0	+34.5	--	+84.3	+110.8
Total Changes	+0.3	+104.8	--	+84.3	+189.4
CE - Cost Variance	988.5	9841.4	--	84.3	10914.2
CE - Cost & Funding	988.5	9841.4	--	84.3	10914.2

Previous Estimate: December 2016

RDT&E	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-7.1
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability. (Estimating)	-4.7	-5.2
Revised estimate to align with the FY 2019 PB. (Estimating)	-6.2	-6.5
Adjustment for current and prior escalation. (Estimating)	+2.9	+3.1
<b>RDT&amp;E Subtotal</b>	<b>-8.0</b>	<b>-15.7</b>

Procurement	\$M	
Current Change Explanations	Base Year	Then Year
Revised escalation indices. (Economic)	N/A	-113.1
Acceleration of procurement buy profile from FY 2018 to FY 2021 due to European Deterrence Initiative (EDI). (Schedule)	0.0	-137.1
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability. (Estimating)	-78.5	-102.2
Revised estimate to align with the FY 2019 PB. (Estimating)	+107.0	+111.3
Adjustment for current and prior escalation. (Estimating)	+3.3	+3.6
Adjustment for current and prior escalation. (Support)	+0.1	+0.1
Increase in Other Support to align with EDI buy profile. (Support)	+9.6	+3.6
Decrease in Initial Spares to align with FY 2019 PB. (Support)	-7.0	-10.9
<b>Procurement Subtotal</b>	<b>+34.5</b>	<b>-244.7</b>

Acq O&M	\$M	
Current Change Explanations	Base Year	Then Year
Revised estimate to reflect the Army's realignment of direct civilian pay costs from RDT&E and Procurement investment accounts to O&M to provide additional transparency and auditability. (Estimating)	+84.3	+107.4
<b>Acq O&amp;M Subtotal</b>	<b>+84.3</b>	<b>+107.4</b>

## Contracts

Contract Identification	
<b>Appropriation:</b>	RDT&E
<b>Contract Name:</b>	AMPV EMD Contract with LRIP Options
<b>Contractor:</b>	BAE Systems Land & Armaments, L.P.
<b>Contractor Location:</b>	34201 Van Dyke Avenue Sterling Heights, MI 48312-4648
<b>Contract Number:</b>	W56HZV-15-C-A001
<b>Contract Type:</b>	Cost Plus Incentive Fee (CPIF)
<b>Award Date:</b>	December 23, 2014
<b>Definitization Date:</b>	December 23, 2014

Contract Price							
Initial Contract Price (\$M)			Current Contract Price (\$M)			Estimated Price At Completion (\$M)	
Target	Ceiling	Qty	Target	Ceiling	Qty	Contractor	Program Manager
383.0	N/A	29	404.8	N/A	29	493.5	493.5

Target Price Change Explanation
The difference between the Initial Contract Price Target and the Current Contract Price Target is due to clarification and update to the contract Scope of Work, specifically tailoring language to articulate the Government's requirement for the contractor to produce designs for the hardware integration for all vehicle mission equipment within the AMPV Family of Vehicles. Additionally, scope was added to incorporate a third workstation into the vehicle and to incorporate the Army's latest network configuration into the vehicle.

Contract Variance		
Item	Cost Variance	Schedule Variance
Cumulative Variances To Date (1/25/2017)	-3.4	-9.1
Previous Cumulative Variances	-15.1	-22.1
Net Change	+11.7	+13.0

Cost and Schedule Variance Explanations
The favorable net change in the cost variance is due to the contractor implementing an Over Target Baseline (OTB) that included a setting Budgeted Cost of Work Scheduled (BCWS) and Budgeted Cost of Work Performed (BCWP) equal to Actual Cost of Work Performed (ACWP). This eliminated the variances; the current -\$3.4M Cost Variance is due to spare parts for test costing more than planned, greater than anticipated effort to respond to Problem Reports in System Survivability and inefficiencies due to part expediting to get prototype deliveries back on schedule.

The favorable net change in the schedule variance is due to the contractor implementing an OTB that included a setting BCWS and BCWP equal to ACWP. This eliminated the variances; the current -\$9.1M Schedule Variance is due to late delivery of prototype vehicles and spare parts to test sites and late completion of qualification testing.

**Notes**

The current EMD contract experienced cost growth as indicated by the \$88.7M difference between the Estimated Price and Completion and the Current Contract Price. Contributing to the cost growth are additional efforts necessary to meet performance requirements, under-resourcing of logistics product development, under estimation of the number and complexity of engineering drawings, inadequate engineering support to manufacturing and test and unplanned efforts related to the replacement of prohibited materials on legacy parts. As a result of the projected overrun BAE implemented an OTB in order to budget for and manage the remainder of the EMD contract. The PM verified the new Performance Measurement Baseline is affordable and executable from a schedule and resource standpoint. BAE resumed EVM reporting with delivery of an Integrated Program Management Report on December 19, 2017. The contract cost growth to date remains less than the program estimate at Milestone B and the Army funded the program to the OSD CAPE ICE. The program remains within cost and funding parameters.

## Deliveries and Expenditures

Deliveries				
Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	29	28	39	71.79%
Production	0	0	2897	0.00%
Total Program Quantity Delivered	29	28	2936	0.95%

Expended and Appropriated (TY \$M)			
Total Acquisition Cost	13774.6	Years Appropriated	7
Expended to Date	506.8	Percent Years Appropriated	29.17%
Percent Expended	3.68%	Appropriated to Date	1192.7
Total Funding Years	24	Percent Appropriated	8.66%

The above data is current as of February 12, 2018.

## Operating and Support Cost

### Cost Estimate Details

<b>Date of Estimate:</b>	December 08, 2014
<b>Source of Estimate:</b>	CAPE ICE
<b>Quantity to Sustain:</b>	2897
<b>Unit of Measure:</b>	Vehicle
<b>Service Life per Unit:</b>	26.00 Years
<b>Fiscal Years in Service:</b>	FY 2021 - FY 2062

The 39 RDTE-funded development vehicles will not be sustained.

### Sustainment Strategy

The AMPV sustainment concept leverages existing organic structures for maintenance and supply support to maximize commonality and minimize the logistics footprint. By using an existing base platform materiel solution, the common and unique Line Replaceable Units (LRU) will be sustained with the two level maintenance and sustainment repair concepts. Field-level maintenance will maintain, handle and support the LRUs with the same concept as the existing Armor Brigade Combat Team (ABCT) structure. Sustainment-level maintenance will use common repair programs, facilities and depots wherever economical and feasible. Newly developed maintenance tasks and support will be determined and supported by results from the Logistics Support Analysis, Level of Repair Analysis, Source of Repair Analysis, Business Case Analysis, and/or Management Analysis, as required.

Any new operator and maintainer training requirements will be determined by task analysis and results from the Logistics Demonstration, Limited User Test, and other vehicle tests. AMPV will provide Operator New Equipment Training and Field Maintenance New Equipment Training to each gaining unit. Mission equipment package training will be provided by the corresponding equipment representatives.

PEO Ground Combat Systems performed the analysis required by section 2464 of title 10 U.S. Code and determined that AMPV is a core system. PM AMPV is committed to developing the detailed requirements for core depot-level maintenance and repair capabilities as well as the associated sustaining workloads required to support such requirements when the vehicle configuration is solidified. A preliminary estimate of core depot hours, using an existing tracked vehicle as the baseline, was included in the section 2366b, title 10 U.S. Code certification. The LRIP option scope of work contains the development of a National Maintenance Work Requirement which will be in place within four years of IOC.

The O&S estimate assumes that the AMPV will support 20 Active and National Guard ABCTs, across the range of military operations and will train in environments typical in cross-country and urban terrain. It replaces the M113 Family of Vehicles (FoV), which comprise 30% of the ABCT vehicle fleet.

### Antecedent Information

The Antecedent system is the M113 FoV. Antecedent estimate is based on data from O&S Management Information System and Army Manpower Cost System.

Annual O&S Costs BY2015 \$M			
Cost Element	AMPV		M113 (Antecedent)
	Average Annual Cost Per Vehicle		Vehicle
Unit-Level Manpower	0.262		0.263
Unit Operations	0.033		0.030
Maintenance	0.074		0.058
Sustaining Support	0.023		0.027
Continuing System Improvements	0.012		0.003
Indirect Support	0.055		0.055
Other	--		--
<b>Total</b>	<b>0.459</b>		<b>0.436</b>

Item	Total O&S Cost \$M			
	AMPV			M113 (Antecedent)
	Current Development APB Objective/Threshold	Current Estimate		
<b>Base Year</b>	34540.1	37994.1	34540.1	32823.9
<b>Then Year</b>	55313.8	N/A	55313.8	0.0

#### Equation to Translate Annual Cost to Total Cost

Total Cost = # of systems x service life per system x average annual cost (BY 2015 \$M)

\$34,540.1M = 2897 x 26 x \$0.458565 (BY 2015 \$M)

O&S Cost Variance		
Category	BY 2015 \$M	Change Explanations
Prior SAR Total O&S Estimates - Dec 2016 SAR	34540.1	
Programmatic/Planning Factors	0.0	
Cost Estimating Methodology	0.0	
Cost Data Update	0.0	
Labor Rate	0.0	
Energy Rate	0.0	
Technical Input	0.0	
Other	0.0	
<b>Total Changes</b>	<b>0.0</b>	
Current Estimate	34540.1	

#### Disposal Estimate Details

**Date of Estimate:** December 08, 2014  
**Source of Estimate:** CAPE ICE

**Disposal/Demilitarization Total Cost (BY 2015 \$M):**

Total costs for disposal of all Vehicle are 128.0